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09/719,546	12/22/2000	Steven J. Hensen	LC-355PCT US	9980

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Loctite Corporation  
Legal Department  
1001 Trout Brook Crossing  
Rocking Hill, CT 06067

EXAMINER

BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/719,546

Applicant(s)

HEMSEN, STEVEN J.

Examiner

Katherine A. Bareford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers *Claims 36-41 are canceled*

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

1. The request for reconsideration, filed Dec. 11, 2002, has been received and considered.
2. The indicated allowability of claim<sup>s</sup> 12-14, 27-29 and 33-35 is withdrawn in view of the newly discovered reference(s) to Schön (US 4517137). Rejections based on the newly cited reference(s) follow.

### *Claim Objections*

3. Claims 25 and 26 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 25 and 26 do not further limit the claim because in claim 25, the transitioning of the impregnating composition would be a method step that does not provide a further limitation to the parent apparatus claim 18. In claim 26, the impregnating composition is not part of the apparatus itself, and thus a further definition of the composition does not limit the claims.

4. Claims 26 and 33 objected to because of the following informalities: (1) in claim 16, it appears that "aerobic" should be "anaerobic" (as described on page 10 of the specification). The specification does not appear to have the terminology "aerobic". Also not the wording of claim

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11. (2) in claim 33, line 3, "lease" should apparently be spelled "least" for grammatical clarity.

Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 5-7, 15-17 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5-7, 15-17 and 23 are all directed to "reclaiming said flowable impregnating composition". However, as worded, these claims give the impression that all of the composition is to be reclaimed, not just "excess" composition left after the impregnating.

*Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2, 5-6, 9-10, 15-16, 18-23, 25 and 30-31 are rejected under 35

U.S.C. 102(b) as being anticipated by Schön (US 4517137).

Schön teaches an impregnation process. Figure 1 and column 1, lines 10-15. At least one mobile vessel is provided in which impregnation of a porous article can be carried out. Column 3, lines 1-25 and figure 1. The vessel comprises a chamber for containing a flowable impregnating composition and at least one porous article to be coated. Column 3, lines 1-25 and figure 1. A series of stations are provided. Figure 1 and column 3, lines 1-25. These stations define an impregnation sequence. Figure 1 and column 3, lines 1-25. Each station performs at least one specific impregnation step on the porous article within the vessel. Figure 1 and column 3, lines 1-25. The vessel is sequentially directed to at least one selected station chosen from said series of stations. Figure 1 and column 3, lines 1-25. The at least one specific impregnation step is performed at the selected station. Figure 1 and column 3, lines 1-25.

Claim 2: the series of stations includes a vacuum station where a vacuum step is performed on the vessel to remove air from the porous article. Figure 1 and column 6, lines 25-50.

Claim 5: the excess flowable impregnating composition is reclaimed after the impregnation step. Claim 7, lines 35-45.

Claim 6: the stations include one where the reclaiming step is performed. Claim 7, lines 35-45 and figure 1 (as part of the pressurization station D).

Claim 9: Schön teaches an impregnation process. Figure 1 and column 1, lines 10-15. At least one mobile vessel is provided in which impregnation of a porous article can be carried out. Column 3, lines 1-25 and figure 1. The vessel comprises a chamber for containing a flowable impregnating composition and at least one porous article to be coated. Column 3, lines

1-25 and figure 1. A series of stations are provided. Figure 1 and column 3, lines 1-25. These stations define an impregnation sequence. Figure 1 and column 3, lines 1-25. Each station performs at least one specific impregnation step on the porous article within the vessel. Figure 1 and column 3, lines 1-25. The vessel is sequentially directed to at least one selected station chosen from said series of stations. Figure 1 and column 3, lines 1-25. The at least one specific impregnation step is performed at the selected station. Figure 1 and column 3, lines 1-25. The directing and impregnation steps occur to impregnate the article with the composition. Column 1, lines 10-15.

Claim 10: the composition becomes a solid from a liquid after the infiltration step. See column 7, lines 40-60 (at the baking station E).

Claim 15: the excess flowable impregnation composition is retrieved after impregnation. Figure 1 and column 7, lines 35-45.

Claim 16: the stations include one where the reclaiming step is preformed. Claim 7, lines 35-45 and figure 1 (as part of the pressurization station D).

Claim 18: Schön teaches an impregnation apparatus to carry out the taught process. Figure 1 and column 1, lines 10-15. At least one mobile vessel is provided in which impregnation of a porous article can be carried out. Figure 1 and column 5, lines 35-60. The vessel comprises a chamber for containing a flowable impregnating composition and at least one porous article to be coated. Figure 1 and column 5, lines 35-60 and column 6, lines 50-65. The vessel also transports the composition and the article to a series of stations. Figure 1 and column 5, lines 45-60. The vessel also provides a closed environment for conducting said impregnation

steps. Column 6, lines 30-35. A series of stations are provided. Figure 1 and column 3, lines 1-25. These stations define an impregnation sequence. Figure 1 and column 3, lines 1-25. Each station performs at least one specific impregnation step on the porous article within the vessel. Figure 1 and column 3, lines 1-25. The vessel is sequentially directed to at least one selected station chosen from said series of stations. Figure 1 and column 3, lines 1-25. Means for directing the vessel sequentially to the steps are provided. Figure 1 and column 5, lines 45-55 (these correspond to the means such as rails taught by applicant – see claim 31 below).

Claim 19: a station can be a vacuum station to remove air from the porosity of the article. Figure 1 and column 4, lines 25-60 (station C).

Claim 20: the vessel itself sustains an applied vacuum. Figure 1 and column 4, lines 25-60.

Claim 21: a pressure station is provided where a pressurization step is performed on the article to complete impregnation of the article. Column 7, lines 20-45 and figure 1 (station D).

Claim 22: the vessel itself sustains a pressurization step. Column 7, lines 20-45 and figure 1.

Claim 23: the stations include a station that provides reclaiming of the excess flowable impregnating composition after impregnation of the article. Column 7, lines 35-45 and figure 1 (part of station D).

Claim 25: the flowable composition transitions from a liquid to a solid after application. Column 7, lines 40-60.

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Claim 30: the stations can accept a plurality of vessels simultaneously. Column 12, lines 10-15.

Claim 31: the directing means can include, for example, rails. Column 5, lines 45-55 and figure 2.

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3, 4, 8, 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schön as applied to claims 1-2, 5-6, 9-10, 15-16, 18-23, 25 and 30-31 above, and further in view of the admitted state of the prior art.

Schön teaches all the features of these claims except (1) returning the chamber to ambient pressure to initiate impregnation (claim 3), (2) the centrifuge (claims 8, 24) and (3) using an anaerobic curing composition as the flowable composition (claim 11). Schön teaches that the system can be used to impregnate porous carbon or graphite bodies with materials such as tar or pitch, but also teaches that the system can also work for other types of bodies with other flowable materials. See column 5, lines 35-50. Schön also teaches a pressurization station that completes impregnation of the article. See column 7, lines 25-45 (station D).



However, the admitted state of the prior art, at page 1-4 and figures 1-2 of the specification, teaches that it is well known to use a liquid impregnant to seal the porosity of porous articles of materials such as lightweight metals. Typically, among other steps, the article is subjected to vacuum aspiration in a vacuum tank, thereby removing entrapped air for the pores in the part; the article is immersed in a bath of an organic liquid impregnant such as an anaerobic impregnant; maintaining the article in a vacuum; and subsequently exposing the immersed article to atmospheric pressure, thereby causing the impregnant to permeate the pores. Then, the liquid impregnant is returned to a storage reservoir and the article is centrifuged to expel any excess impregnant adhering to the surface thereof. The article is also subjected to a curing treatment.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schön to use the impregnating process/apparatus to apply sealant curing compositions to lightweight porous metals as suggested by the admitted state of the art with an expectation of desirable impregnating results, because Schön teaches a method and apparatus for impregnating porous materials such as carbon, but further teaches that other porous bodies/flowable compositions can also be used and the admitted state of the prior art teaches that it is desirably known that lightweight metals are porous bodies that are conventionally impregnated with a flowable composition, such as an anaerobic sealants. It would further have been obvious to modify Schön in view of the admitted state of the prior art to further provide a centrifuge step after impregnating with an expectation of desirable impregnation results, because the admitted state of the prior art teaches that such a centrifuge step is desirably performed in an impregnation vessel after impregnation. It would further have been obvious to modify Schön in

view of the admitted state of the prior art to further provide returning the chamber to ambient pressure to initiate impregnation with an expectation of desirable impregnation results, because Schön teaches that after the vacuum station, a pressurization station is provided to complete impregnation and the admitted state of the prior art teaches when impregnating in a vessel that has been reduced to a vacuum, it is conventionally known to initiate impregnation by returning the chamber to ambient pressure.

11. Claims 12-14, 26-29 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schön in view of the admitted state of the prior art as applied to claims 3, 4, 8, 11 and 24 above, and further in view Kutsuna et al (US 4520045).

Schön in view of the admitted state of the prior art teaches all the features of these claims except (1) the deaerating (claims 12-14, 27-29 and 33-35) and (2) the curing features (claim 26).

Kutsuna teaches an impregnating method for impregnating a die cast article with a sealant, such as acrylic resin. See column 1, lines 5-35. Impregnating occurs in an impregnating vessel that contains sealant and the article to be impregnated. See column 4, lines 50-60 and column 5, lines 40-50 and figure 2. The sealant is stored in a separate storage vessel. Column 4, lines 60-68. In this independent storage vessel, the sealant is deaerated prior to being provided to the impregnating vessel due to the applying of a vacuum to the storage vessel with sealant inside. Column 5, lines 10-40. The sealant in the impregnated article can later be cured by heat. Column 7, lines 5-15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schön in view of the admitted state of the prior art to provide a deaerating of the impregnating liquid as suggested by Kutsuna with an expectation of desirable impregnation results, because Schön in view of the admitted state of the prior art suggests impregnating sealant in the pores of a metal and Kutsuna teaches that it is desirable to apply a vacuum to a sealant storage vessel prior to impregnating sealant into the pores of an article. It further would have been obvious to modify Schön in view of the admitted state of the prior art to use a heat curable sealant as suggested by Kutsuna with an expectation of desirable impregnation results, because Schön in view of the admitted state of the prior art suggests impregnating sealant in the pores of a metal and Kutsuna teaches that a desirable sealant for impregnating sealant into the pores of an article is a heat curable sealant.

12. Claims 7, 17 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schön (US 4517137).

Schön teaches all the features of these claims, as discussed in the 35 USC 102(b) rejection above, except (1) tipping the vessel to reclaim composition (claims 7, 17) and (2) the computer control (claim 32).

It is the Examiner's position that it is well known to tip a vessel to remove/drain excess material in a vessel. If applicant disagrees, he should so state on the record.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schön to tip the vessel horizontally so as to pour out excess

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composition with an expectation of desirable impregnation results, because Schön teaches to remove excess composition and further teaches that the vessels are portable and with removable lids, and thus it would have been obvious to one of ordinary skill in the art that any conventionally known way to remove excess material from a vessel, i.e. by draining from a line, or pouring out by tipping, would be expected to provide desirable reclaiming results. It further would have been obvious to one of ordinary skill in the art to modify Schön provide a computer/machine logic based control means to provide a desirable path control, because Schön teaches having the vessel follow a controlled sequence of impregnation steps without indicating whether the control is manual or machine controlled, and as held by the court in *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958) broadly providing an automatic or mechanical means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art. See MPEP 2144.04.

13. Hellier (US 4519407) also provides a movable impregnation vessel for impregnating a porous article with a flowable composition at a series of stations.

#### *Response to Arguments*

14. Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner has cited Schön, the admitted state of the prior art and Kutsuna as teaching or suggesting the features of the claims as provided.


The rejections using Young (US 4311735) have been withdrawn due to applicant's arguments.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
KATHERINE A. BAREFORD  
PRIMARY EXAMINER  
GROUP 1100/200